

Prevent Unnecessary Surgeries

UPMC Health Plan: Pittsburgh, PA

Research shows that patients with frailty characteristics — “a state of increased vulnerability to health-related stressors”¹— often have a harder time recovering from surgery. They experience longer hospital stays and have higher rates of complications, readmission and mortality - especially after major surgery.^{2,3} Patients of any age can be impacted by frailty.

Using a standardized, pre-surgery frailty screening tool, the Veterans Affairs Nebraska–Western Iowa Health Care System (VA-NWIHCS) demonstrated that assessing patients’ pre-operative frailty and modifying surgical plans if indicated, can reduce mortality among all surgical patients, particularly those with higher frailty scores.⁴ In a representative sample of all surgeries performed at the VA-NWIHCS between 2007 and 2014, mortality among frail surgical patients dropped from 12.2 percent to 3.8 percent after the pre-surgery frailty assessment was introduced in July 2011.⁵

Encouraged by the VA’s experience and under the leadership of high-energy surgeon-champion, Dr. Daniel Hall (who developed the frailty tool used at the VA-NWIHCS), UPMC decided to pilot Dr. Hall’s frailty assessment tool, the Risk Analysis Index (RAI). The RAI is a 14-item, single page questionnaire that patients over age 18 must complete before elective surgery. A family member or advocate can assist with completing the form, if needed. Clinicians can then modify responses based on their interviews with patients. The form asks patients about their living arrangements as well as specific medical conditions, such as kidney problems, shortness of breath, unexplained weight loss, difficulty remembering things and how well they perform specific activities of daily living.

Patients identified as potentially frail by their high scores (RAI \geq 42 on an 81-point scale) receive additional evaluation during what UPMC leaders call a “surgical pause.” The surgical pause provides clinicians an opportunity to take a step back, gather more information, talk with the patient and ensure that the care plan is truly patient-centered.

Some patients may be referred to UPMC’s Center for Pre-Surgical Care (CPC) for a re-assessment with a multi-mode frailty assessment. The result may be a care plan that includes additional resources or pre-rehabilitation measures, such as physical or respiratory exercise or smoking cessation counseling prior to scheduling surgery. The patient may also elect not to have surgery in favor of alternative treatments.

“Surgeons usually develop a gut sense about patients using ‘the eyeball test,’ and surgeons generally have pretty good eyeballs. But they’re also prone to the human tendency to overestimate their patients and their own capabilities. That’s why this tool is so important.”

Daniel Hall, MD, MDiv, MHSc
Associate Professor of Surgery, University of Pittsburgh
Leader of UPMC’s RAI initiative

At UPMC the RAI is currently deployed only within outpatient surgical clinics, UPMC Health Plan leadership is also evaluating whether use of the RAI can be expanded to additional provider types and how the tool might be used to assess frailty for all UPMC Health Plan members, regardless of where they receive care.

Lessons learned from implementation of the RAI have informed a joint effort by UPMC Health Plan and UPMC to launch a Center for Shared Decision-Making. With support from the Beckwith Foundation, this virtual center will promote culture change among providers and should accelerate adoption of evidence-based tools – like the RAI – across UPMC Health Plan’s provider network. Dr. Daniel Hall, who championed the RAI, will lead the center.

Socializing the Change

The organization’s top administrative and clinical leaders emailed information about the frailty screening initiative to all surgical practices within UPMC, underscoring its value and the organization’s commitment to it. The project coordinator for the program, who is also a member of the UPMC Quality Improvement department, met with each surgical practice, either in person or by webinar, to teach providers about the screening tool, when and how to use it, what the results mean and why it is important.

Surgical leaders made presentations at internal conferences and at grand rounds to further familiarize attendees with the concept and importance of frailty, as well as the initiative, to assess it in pre-surgery patients.

A two-stage timeline helped practices adapt gradually to the tool: Surgeons were first asked to use the tool to assess patients’ risks, and then they were expected to use the tool, create an appropriate care plan based on the score and document it all in the electronic medical record. Financial incentives were attached to both stages.

Tools that Support Best Practice

Within UPMC, use of the RAI has been embedded into the electronic medical record. Patients with high frailty scores (42 or more on a linear scale from zero to 81) must have a documented care plan that reflects their frailty-associated risks. Surgeons have two options: They can refer these patients for further evaluation by their primary care physician or by UPMC’s new Center for Pre-Surgical Care (CPC), specifically created to help prepare surgery patients for optimal results. Alternatively (or additionally), surgeons can document that the patient has been informed about his or her risk score and has engaged with the physician in a shared decision-making process. The result of that process is documented in a plan—which can include deciding not to have surgery. Current data demonstrate that surgeons document shared decisions for 87 percent of frail patients while referring 30 percent to the primary care physician and 21 percent to the CPC for further evaluation.

Additional features and functions make it easy for clinicians to modify and document care plans. Clinical decision-making is further supported by tying clinical pathways to billing workflows; surgeons are unable to submit a bill if they do not select one of the embedded care plans for patients with high RAI scores. This ensures the RAI was completed, appropriate steps were taken to make a shared decision and that decision was documented.

Results

By mid-2018, UPMC had performed over 200,000 assessments with the Risk Analysis Index tool. Statistically significant longitudinal data on outcomes will likely be available in late 2018. Preliminary results and anecdotal evidence suggest that shared decision-making is increasing, and the volume of surgery is decreasing among the frail—both indicators that the program is having the desired effect. Data collection is under way to ensure that these changes are consistent with patient values.

In addition, UPMC has validated the predictive capacity of the tool, with data showing that higher RAI scores are associated with higher rates of mortality and readmissions, as well as longer lengths of stay.

Risk Analysis at UPMC	
RAI \geq 42 in Surgery Patients (e.g., patients evaluated in outpatient surgery clinics who subsequently had surgery)	<ul style="list-style-type: none"> Approximately 10% of population (9.6%) Roughly double the average mortality (12.2% compared to 5.4%)
RAI \geq 42 in Non-Surgery Patients (e.g., patients evaluated in outpatient surgery clinics who did not have surgery)	<ul style="list-style-type: none"> Approximately 5% of population (4.6%) Five times the average mortality (5.7% compared to 1.3%)

Outcomes Other Than Mortality for UPMC Surgery Patients with RAI \geq 42	
30-Day Readmission Rate	Approximately double the average rate for total population (21.7% compared to 12.2%)
90-Day Readmission Rate	Approximately double the average rate for total population (34.5% compared to 19.3%)
Intensive Care Unit Length of Stay \geq 8 days	Approximately equal to the average rate for total population (3.8% compared to 1.9%)

Sources

1. Thomas N. et al., "Accumulated Frailty Characteristics Predict Postoperative Discharge Institutionalization in the Geriatric Patient. Robinson," *Journal of the American College of Surgeons* 213, no. 1 (2011):37-42 <https://doi.org/10.1016/j.jamcollsurg.2011.01.056>.
2. Daniel E. Hall et al., "Development and Initial Validation of the Risk Analysis Index for Measuring Frailty in Surgical Populations," *JAMA Surgery* 152, no. 2 (2017):175, doi:10.1001/jamasurg.2016.4202.
3. Daniel E. Hall et al., "Association of a Frailty Screening Initiative With Postoperative Survival at 30, 180, and 365 Days," *JAMA Surgery* 152, no. 3 (2017): 233, doi:10.1001/jamasurg.2016.4219.
4. Daniel E. Hall et al., "Development and Initial Validation of the Risk Analysis Index for Measuring Frailty in Surgical Populations," *JAMA Surgery* 152, no. 2 (2017): 175, doi:10.1001/jamasurg.2016.4202.
5. Daniel E. Hall et al., "Association of a Frailty Screening Initiative With Postoperative Survival at 30, 180, and 365 Days," *JAMA Surgery* 152, no. 3 (2017): 233, doi:10.1001/jamasurg.2016.4219.